

**REMARKS**

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks. No new matter has been added by the foregoing amendments, and full support for such amendments can be found in the original claims, and in the specification at page 35, line 29 to page 36, line 13.

***Information Disclosure Statement***

Applicants note that the Information Disclosure Statement filed on April 6, 2004 has not been considered by the Examiner. As this Statement was properly and timely filed, consideration is respectfully requested.

***Objection to the Specification***

At page 4 of the Office Action, the Specification was objected to because it allegedly contains a title that is not descriptive. Applicant has amended the title as suggested by the Examiner and respectfully requests reconsideration of this objection.

For at least the foregoing reasons, Applicant respectfully submits that the Specification is not objectionable, and therefore respectfully requests withdrawal of the objection thereto.

***Objection to the Claims***

At page 4 of the Office Action, Claims 2, 5, 7, 9, 12, 16, 20, 26 and 28 were objected to because they allegedly contain grammatical errors. The claims have been amended to address these grammatical errors and Applicant respectfully requests reconsideration of this objection.

For at least the foregoing reasons, Applicant respectfully submits that Claims 2, 5, 7, 9, 12, 16, 20, 26 and 28 are not objectionable, and therefore respectfully requests

withdrawal of the objection thereto.

***Rejection under 35 U.S.C. § 101***

In the Office Action, beginning at page 5, Claims 16-17 and 20-21 were rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Claims 16 and 20 have been amended to include the term “isolated” in reference to the DNA. Applicant respectfully requests reconsideration of this rejection.

For at least the foregoing reasons, Applicant respectfully submits that Claims 16-17 and 20-21 are directed to statutory subject matter, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 101.

***Rejection under 35 U.S.C. § 112, second paragraph***

In the Office Action, beginning at page 5, Claims 1-2, 5, 7-10, 12-13, 16-17, 20-21, and 26-31 were rejected under 35 U.S.C. § 112, second paragraph, as reciting subject matters that allegedly are indefinite. Applicant respectfully requests reconsideration of this rejection.

In paragraph 15a, the Examiner alleges that the claims are unclear in the recitation of “hybridizes”. The applicant respectfully disagrees with the Examiner’s assertion. The Applicant feels that the recitation of hybridization time is an unnecessary limitation as it depends on which buffer is utilized. Furthermore, Southern hybridization , including the washing step, and the times for each step are clearly within the skill of the art worker in this field. Depending on the chosen buffer, one of skill in the art can choose the appropriate length of washing and hybridization. Although applicants assert that the claims were clear, they have been amended in the interests of advancing prosecution, and therefore, it is respectfully requested that this rejection be withdrawn.

In paragraph 15b, claim 9 was rejected for allegedly lacking antecedent basis. The claims have been amended as suggested by the Examiner, and therefore, it is

respectfully requested that this rejection be withdrawn.

In paragraph 15c, claims 12-13, 28-29, and 30-31 were rejected for allegedly omitting essential elements. Applicants respectfully disagree with the Examiner's allegation. The components in the medium are recited in the specification, and one of ordinary skill would know how to formulate the medium with the essential components based upon applicant's description appropriate for the cells being cultured. Therefore, the medium components are clearly defined, and no essential elements are missing, as the media is fully described in the specification. For example, the culturing method as claimed must take place in some sort of vessel, but the Examiner is not requiring applicants to insert that the culture must be in a Petri dish or flask, although this is clearly an 'essential element'. Therefore, applicants assert that the method steps in claims 12-13, 28-29, and 30-31 are clearly set forth and adequately defined in the specification, and as such, applicants respectfully request that the rejection be withdrawn.

In paragraph 15d, claims 16-17 and 20-21 were rejected as being allegedly confusing. Applicants have amended the claims to better clarify the meaning, and hence it is respectfully requested that this rejection be withdrawn.

In paragraph 15e, claims 17 and 21 were rejected as being allegedly indefinite in terms of the stringent conditions. These conditions have been inserted into the claims, and although applicants assert the claims were previously definite, the claims have been amended in the interests of advancing prosecution to recite the stringent conditions.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-2, 5, 7-10, 12-13, 16-17, 20-21, and 26-31 fully comply with 35 U.S.C. § 112, second paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

***Rejection under 35 U.S.C. § 112, first paragraph***

In the Office Action, beginning at page 8, Claims 1-2, 5, 7-10, 12-13, 16-17, 20-

21 and 26-31 were rejected under 35 U.S.C. § 112, first paragraph, as reciting subject matters that allegedly contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant respectfully requests reconsideration of this rejection.

Applicants respectfully disagree with the above assertions and allegations, and respectfully assert that claimed invention is fully and adequately described by the specification. Applicants have previously limited the claims to the strain of bacteria "*Methylophilus methylotrophus*". It is respectfully asserted that the full scope of the claims is clearly described so that a person ordinarily skilled in the art could make and use the invention commensurate in scope with these claims.

The Examiner's arguments focus on the undue experimentation required to determine all *Methylophilus* bacteria having enhanced activity of dihydrodipicolinate synthase and/or aspartokinase. The genes and proteins having enhanced activity are not novel sequences, but are known in the art. The prior art must be considered when determining undue experimentation and undue breadth of claims, and there is a body of literature of the genes/proteins, their sequences, and their activities in various strains of bacteria. We attach to this response appendix A, which shows an alignment comparing amino acid sequences of dihydrodipicolinate synthase and aspartokinase of *M. methylotrophus* with those of other microorganisms. These alignments show conserved regions and non-conserved regions, which would clearly allow someone of skill in the art to fully determine other species within the genus that would function as described and claimed. Furthermore, two literature references are provided as appendix B (Zhang et al. and Parkhill et al.), which show sequences and analysis thereof of aspartokinase from *Amycolatopsis mediterranei* and dihydrodipicolinate synthase from *Neisseria meningitides*, respectively. One of ordinary skill, armed with this knowledge in the art of the claimed genes/proteins from other species, the exemplified mutations of the genes

and proteins, and the high level of skill in this art, would clearly be able to determine other species that when transformed into the particular claimed strain of *Methylophilus* would have the activity of producing L-amino acids. The methods for determining L-amino acid production are well-known and routine to the skilled art worker.

For at least the foregoing reasons, Applicant respectfully submits that Claims 1-2, 5, 7-10, 12-13, 16-17, 20-21 and 26-31 fully comply with 35 U.S.C. § 112, first paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

In the Office Action, beginning at page 11, Claims 12, 5, 7-10, 12-13, 16-17, 20-21, and 26-31 were rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph as allegedly being unenabled by the specification. Applicants assert that it would not require undue experimentation for the skilled art worker to determine other species which fall within the genus of dihydrodipicolinate synthase and aspartokinase genes/proteins, since many sequences from other microorganisms are known in the art. Based on the attached alignment, one of ordinary skill could easily determine regions of the genes/proteins tolerant to change and those not tolerant to change, thereby easily determining other members of the genus. Such determinations would not require undue experimentation since there is much knowledge in the art concerning these sequences, and the skill level in this art is very high. For at least the foregoing reasons and for those outlined above, Applicant respectfully submits that Claims 1-2, 5, 7-10, 12-13, 16-17, 20-21 and 26-31 fully comply with 35 U.S.C. § 112, first paragraph, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 112.

***Rejection under 35 U.S.C. § 102***

In the Office Action, beginning at page 16, Claims 16-17 and 20-21 were rejected under 35 U.S.C. § 102, as reciting subject matters that allegedly are anticipated by

Kojima et al. (WO 95/16042). Applicant respectfully requests reconsideration of this rejection.

Applicant respectfully disagrees with the Examiner's assertion and encloses herewith alignment data comparing amino acid sequences of AK from *M. methylotrophus* (SEQ ID NO: 6 of the present invention) and AK from *E. coli* (SEQ ID NO: 8 of WO95/16042), and comparing amino acid sequences of DDPS between *M. methylotrophus* (SEQ ID NO: 10 of the present invention) and *E. coli* (SEQ ID NO: 4 of WO95/16042). This data shows that AK of *M. methylotrophus* has homology of 26.8% to that of *E. coli*, and that DDPS of *M. methylotrophus* has homology of 55.3% to that of *E. coli*. That is, amino acid sequences of AK and DDPS disclosed in WO95/16042 are different from SEQ ID NO: 6 or SEQ ID NO: 10 of the present invention in more than "several" amino acids. The definition of "several" can be located at page 34, lines 3-6 of the specification. As such, it is believed that the isolated DNA of claims 16-17 and 20-21 is not anticipated by WO95/16042.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 16-17 and 20-21 are not anticipated by Kojima et al., are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102.

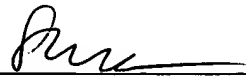
### ***Conclusion***

For at least the foregoing reasons, Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of the present patent application is therefore respectfully solicited.

If Examiner Steadman believes that a telephone conference with the undersigned would expedite passage of the present patent application to issue, he is invited to call on the number below.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the undersigned respectfully requests that she be contacted immediately.

Respectfully submitted,

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